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	CLASS
DRAFTSMAN	SUBCLASS

# FIG. 1

```
PRIMITIVE SIMPLE _ DFF ( Q, D, CLK, SET );
    OUTPUT Q;
    INPUT  D , CLK, SET;
    REG    Q;
```

```
// POSITIVE EDGE TRIGGERED D FLIP-FLOP WITH ACTIVE HIGH
// ASYNCHRONOUS SET
```

## TABLE

```
//   D      CLK     SET      Q      Q+
```

1	( 01 )	0	:	?	:	1; // LINE 1: CLOCKED DATA
0	( 01 )	0	:	?	:	0; // LINE 2: CLOCKED DATA

?	?	*	:	?	:	1; // LINE 3: IGNORE : PESSIMISM
---	---	---	---	---	---	----------------------------------

?	?	1	:	?	:	1; // LINE 4: ASYNCHRONOUS SET
---	---	---	---	---	---	--------------------------------

?	( ?0 )	?	:	?	:	-; // LINE 5: IGNORE FALLING CLOCK
---	--------	---	---	---	---	------------------------------------

*	1	?	:	?	:	-; // LINE 6: IGNORE DATA EDGES
---	---	---	---	---	---	---------------------------------

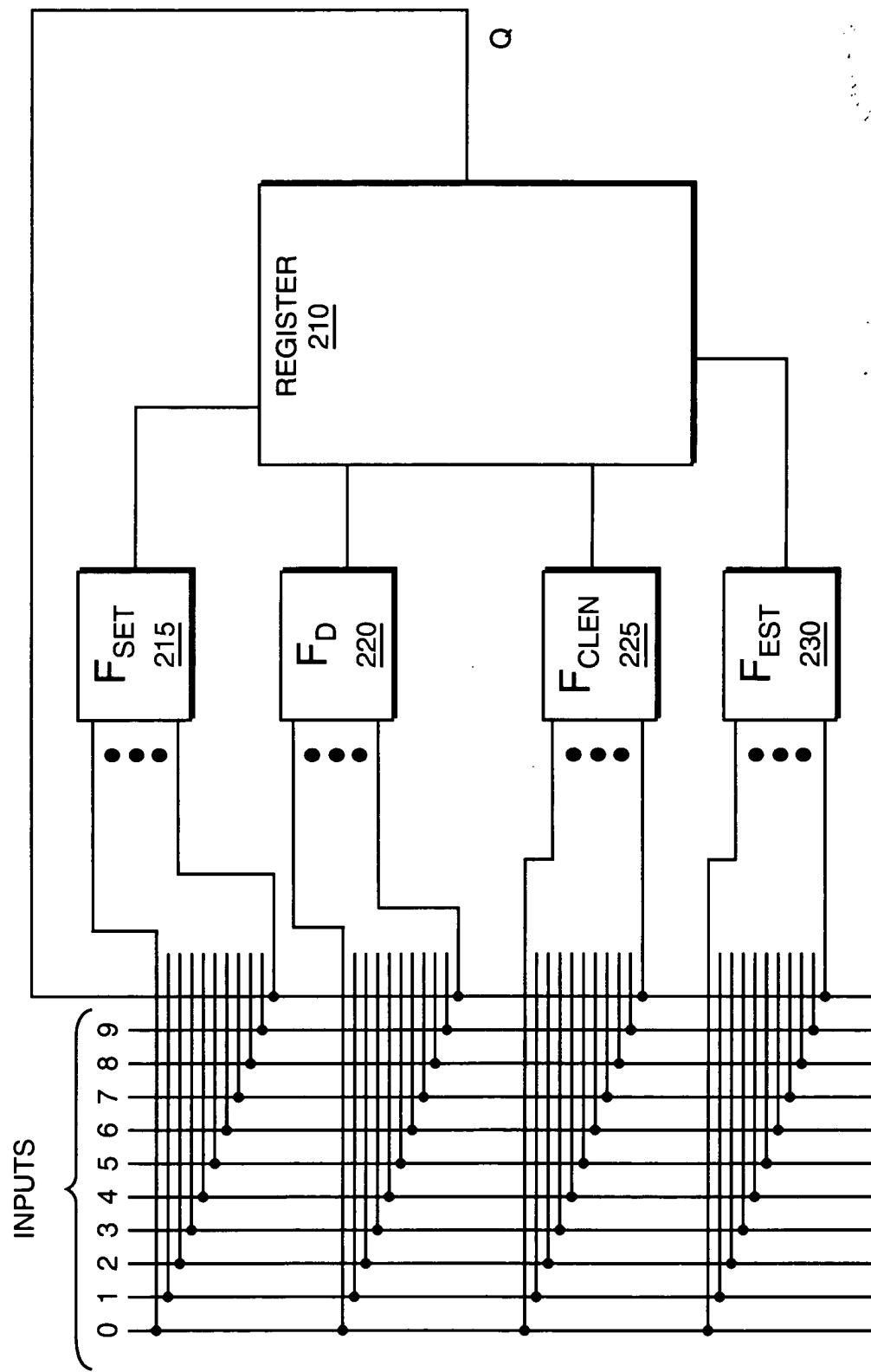
*	0	?	:	?	:	-; // LINE 7: IGNORE DATA EDGES
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ENDTABLE

ENDPRIMITIVE

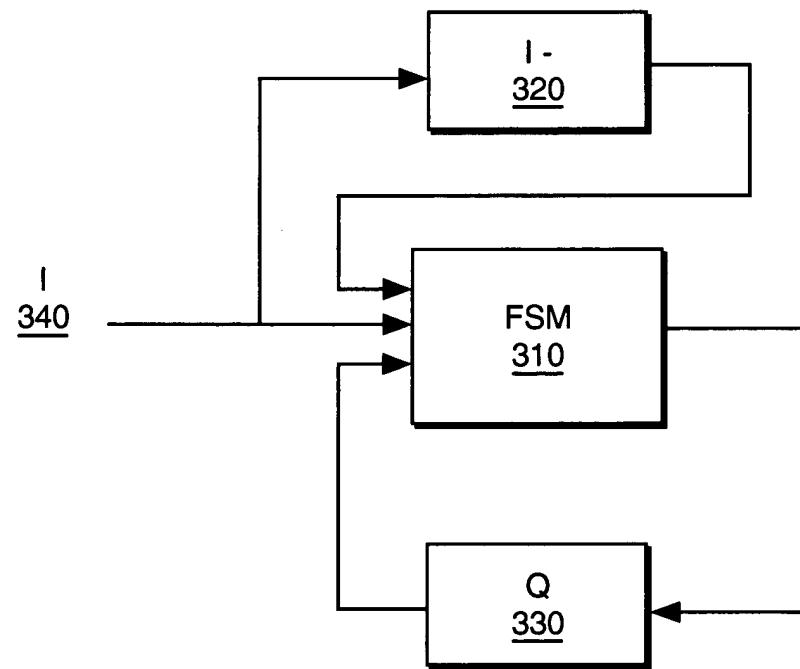
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**FIG. 2**



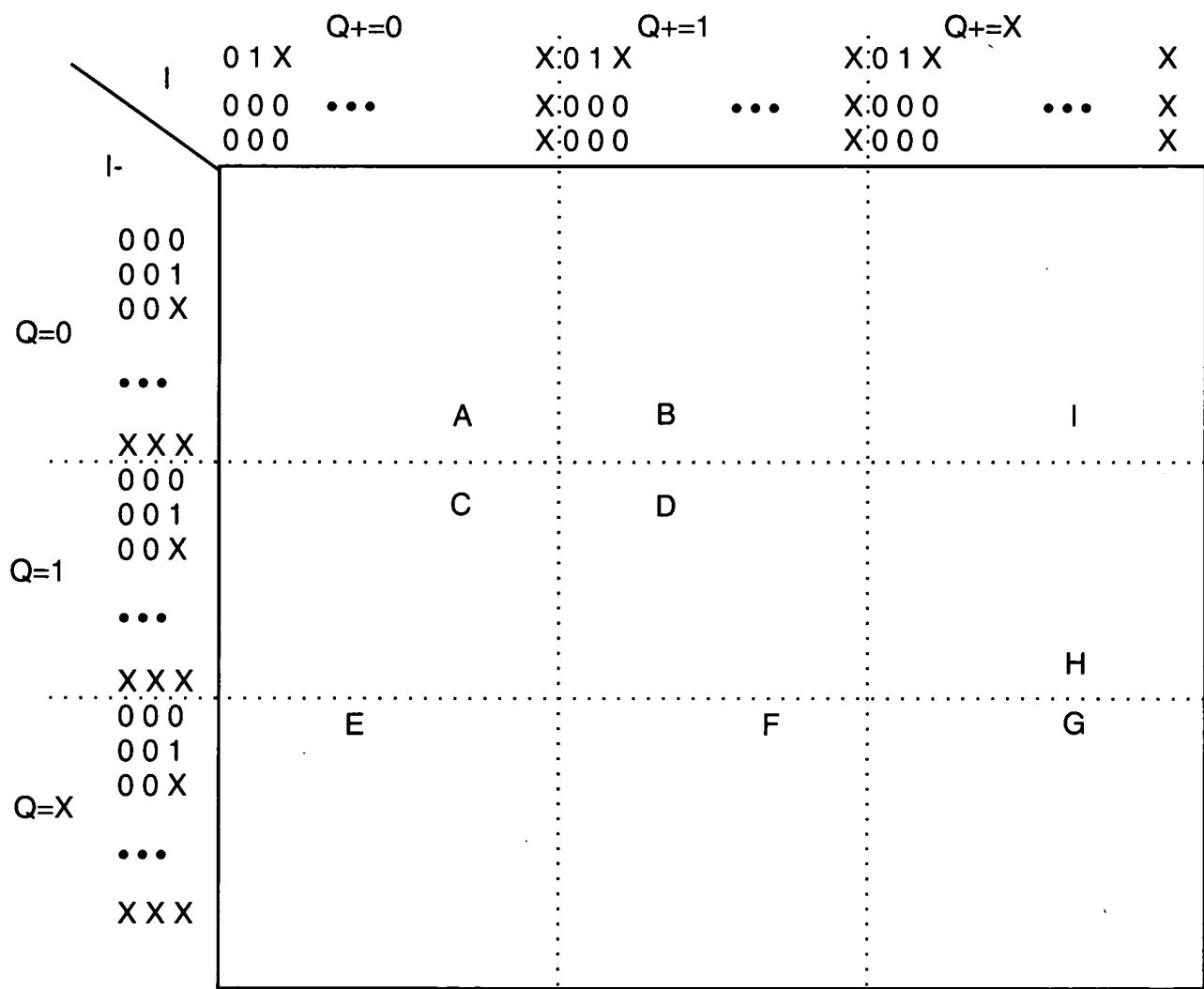
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## FIG. 3



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## FIG. 4



5AA

5AB

**FIG. 5AA**

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5AA

5AB

**FIG. 5A B**

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5BA

5B

**FIG. 5BA**

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5BA

5BB

## FIG. 5BB

X1 0X : R : . . . . E : . . . . L : E : . . . . A : .  
X1 10 : U : . . . . L : . . . . E : . . . . E : . . . . L : .  
X1 11 : R : . . . . L : . . . . E : . . . . E : . . . . L : .  
X1 1X : U : . . . . L : . . . . E : . . . . E : . . . . L : .  
X1 X0 : U : . . . . E : . . . . L : . . . . E : . . . . E : .  
X1 X11 : R : . . . . E : . . . . E : . . . . E : . . . . A : .  
X1 XX : R : . . . . A : . . . . A : . . . . A : . . . . A : .  
XX 00 : U : . . . . A : . . . . E : . . . . A : . . . . A : .  
XX 01 : R : . . . . A : . . . . E : . . . . A : . . . . A : .  
XX 0X : R : . . . . A : . . . . L : . . . . L : . . . . E : .  
XX 10 : U : . . . . L : . . . . L : . . . . L : . . . . E : .  
XX 11 : R : . . . . L : . . . . L : . . . . L : . . . . E : .  
XX 1X : U : . . . . L : . . . . A : . . . . E : . . . . E : .  
XX X0 : U : . . . . A : . . . . A : . . . . AE : . . . . AE : .  
XXX 1 : R : . . . . A : . . . . A : . . . . AE : . . . . AE : .  
XXX X : R : . . . . A : . . . . AE : . . . . AE : . . . . AE : .

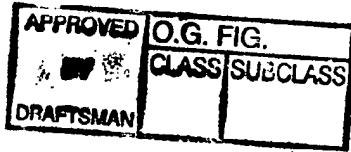


FIG. 6

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## FIG. 7

	I, Q	0 0	0 1	0 1	0 0	1 1	1 0	1 1	1 1
	+	0 1	0 1	0 1	0 0	1 1	1 1	0 1	1 1
		1 1							
	I-Q								
0001	R		L		E				
0011	R	E		L	L				
0101	R	E		L		E			
0111	R		L	E			L		
1001	R	E			L	E			
1011	R		L		E		L		
1101	R			E	E			L	
1111	R				L	L	E		

## FIG. 8

D, CLK

SET, Q

		00	11	11	10
		00	0	0	0
00		DC	0	DC	DC
01		DC	DC	DC	DC
11		1	1	1	1
10					

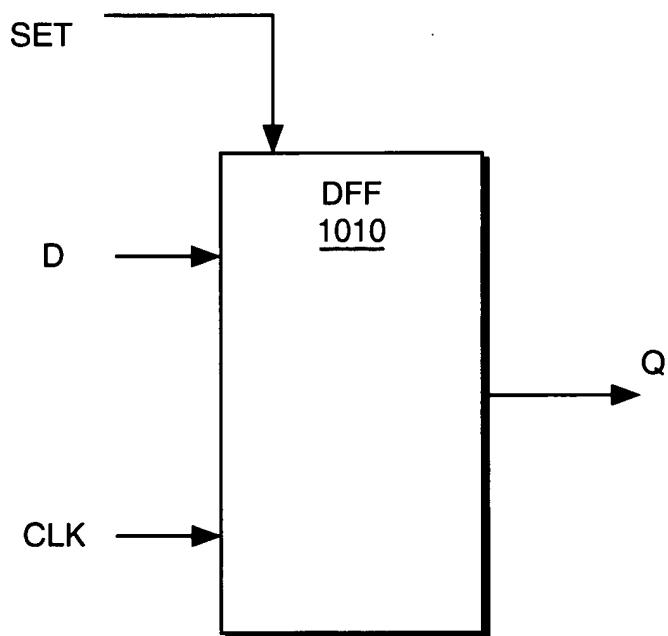
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## FIG. 9

Diagram illustrating the state transition table for a D flip-flop. The inputs are D and SET, Q. The output is Q. The table shows the state transitions for all possible input combinations.

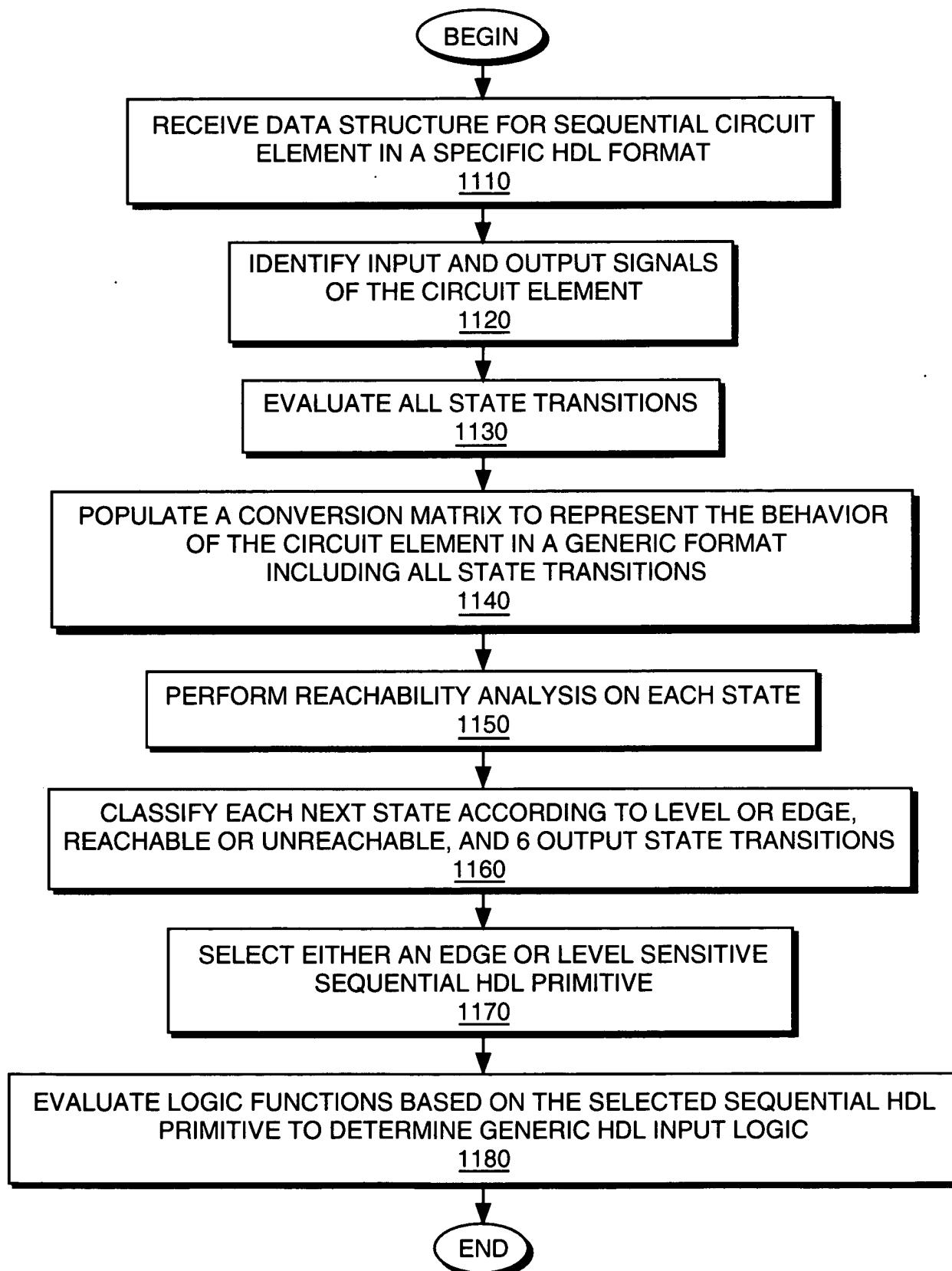
		D	SET, Q	Q
		0	1	
00		0	1	
01		0	1	
11		DC	1	
10		DC	DC	

## FIG. 10



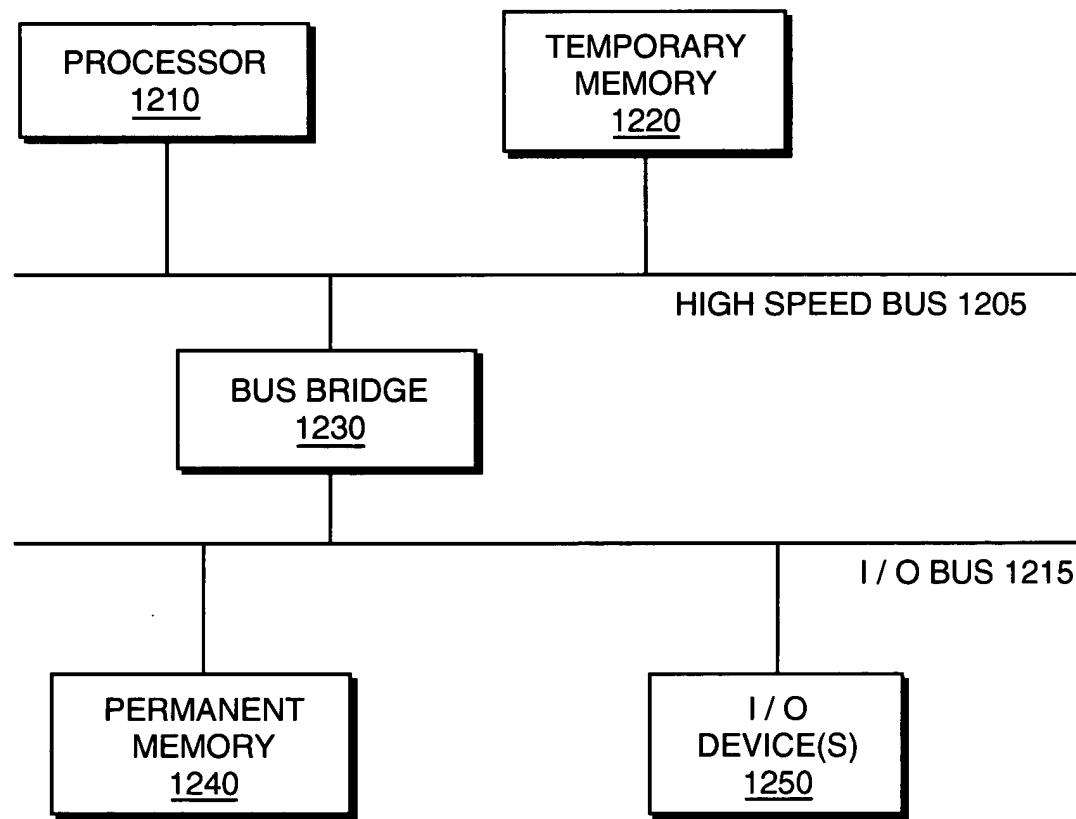
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**FIG. 11**



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# FIG. 12



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# FIG. 13

